OSHA

OSHA's Audits of DOE's Non-Defense Science Laboratories

January 23, 2004

OSHA's Directorate of Science, Technology and Medicine
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Agenda

- Audit overview
- Highlights of findings
- Questions and answers

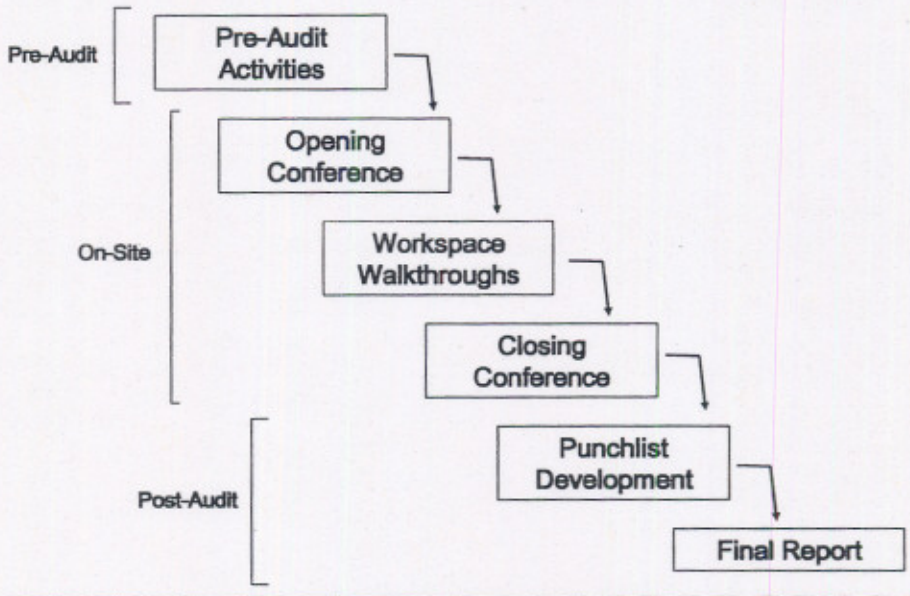
Scope of Audits

- Scope determined by DOE's Office of Science
- All workplaces where employee exposures could reasonably be expected to occur unless exempted by DOE's Office of Science
- Audits covered all employees and looked at contractor-led operations, including construction activities

Audit Objective

- Identify instances of non-compliance with current OSHA standards with enough detail for DOE to determine feasible abatement methods and costs
  - Standards
  - General Duty Clause (5)(a)(1)
- "Snapshot-in-time" of compliance status

Audit Process



Audit Time Line

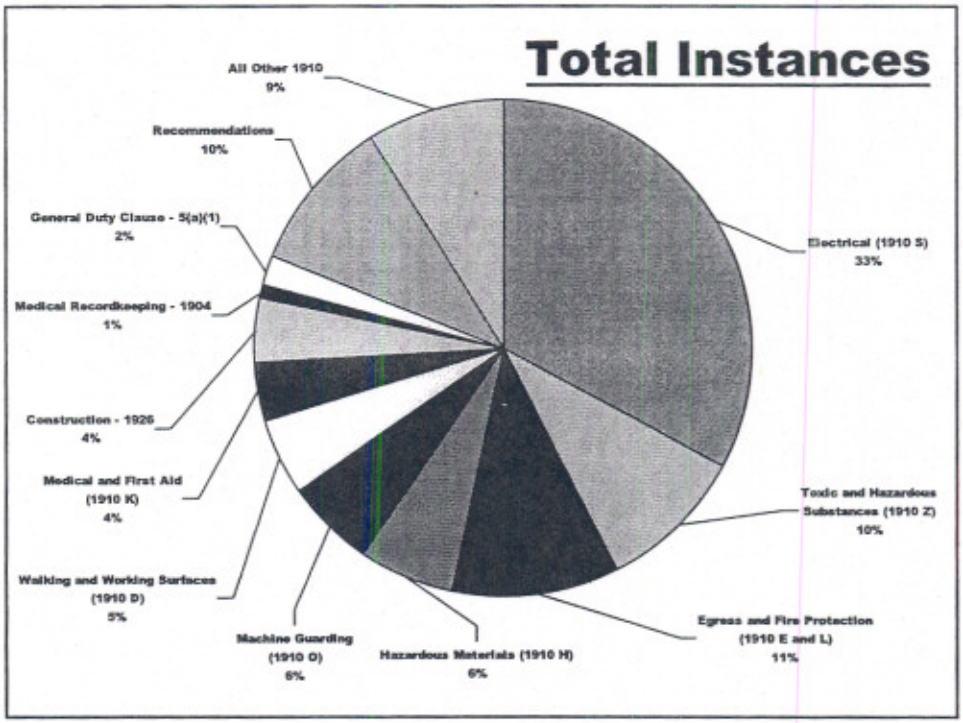
DOE Laboratory	Audit Dates	Final Punchlist to DOE	Final Report to DOE
Oak Ridge	5/6-21/03	7/29/03	7/29/03
Argonne	7/7-17/03	8/8/03	*(2/2/04)*
Thomas Jefferson	8/12-15/03	8/29/03	12/23/03
Princeton	8/12-15/03	9/05/03	12/16/03
Ames	9/15-17/03	12/01/03	*(1/30/04)*
Pacific Northwest	9/18-26/03	12/16/03	*(1/30/04)*
Brookhaven	10/21-31/03 11/12-21/03	*(3/1/04)*	*(3/30/04)*
Berkeley	1/13-23/04	*(3/8/04)*	*(4/16/04)*
Stanford	2/5-13/04	*(3/30/04)*	*(4/30/04)*
Fermi	3/2-12/04	*(4/20/04)*	*(4/30/04)*

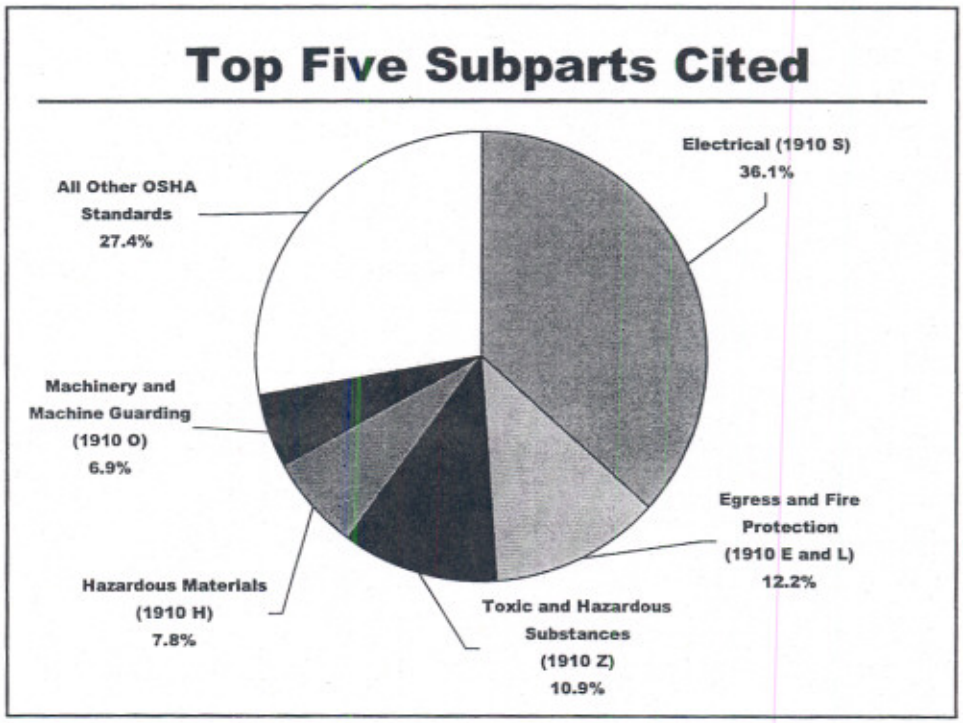
Positive Items

- **Radiation**
  - Very few (13) findings related to 29 CFR 1910.1096
  - Some extra dosimetry is being done
  - One laboratory's radioactive waste storage has a 24x7 alarm and lockable storage vaults
- **Medical**
  - Many labs providing non-required physicals
  - Overall, labs have excellent relationships with safety and industrial hygiene staffs
- **Emergency Response**
  - Appears to be good relationships with the local community emergency responders

Audit Summary

DOE Lab	Buildings Inspected	Auditors	Days on Site	Different OSHA Standards	Top Five Standards Cited at Each Lab
Oak Ridge	156	19	12	205	Electrical, Egress & Fire Protection, Toxic & Hazardous Substances, Machine Guarding, Walking & Working Surfaces
Argonne	135	23	9	205	Electrical, Toxic & Hazardous Substances, Hazardous Materials, Egress & Fire Protection, Medical
Thomas Jefferson	93	13	4	59	Electrical, Hazardous Materials, Egress & Fire Protection, Environmental Controls, Toxic & Hazardous Substances
Princeton	38	13	4	86	Electrical, Machine Guarding, Walking & Working Surfaces, Environmental Controls, Medical
Ames	10	9	3	70	Electrical, Hazardous Materials, Toxic & Hazardous Substances, Egress & Fire Protection, Machine Guarding
Pacific Northwest	41	20	7	157	Electrical, Egress & Fire Protection, Toxic & Hazardous Substances, Hazardous Materials, Machine Guarding
Brookhaven	474	22	17	~ 375	
Berkeley		~ 24	8		
Stanford					
Fermi					


Total Instances
All Other 1910
9%
Recommendations
10%
General Duty Clause - 5(a)(1)
2%
Medical Recordkeeping - 1904
1%
Construction - 1926
4%
Medical and First Aid
(1910 K)
4%
Walking and Working Surfaces
(1910 D)
5%
Machine Guarding
(1910 O)
6%
Hazardous Materials (1910 H)
6%
Egress and Fire Protection
(1910 E and L)
11%
Toxic and Hazardous
Substances (1910 Z)
10%
Electrical (1910 S)
33%

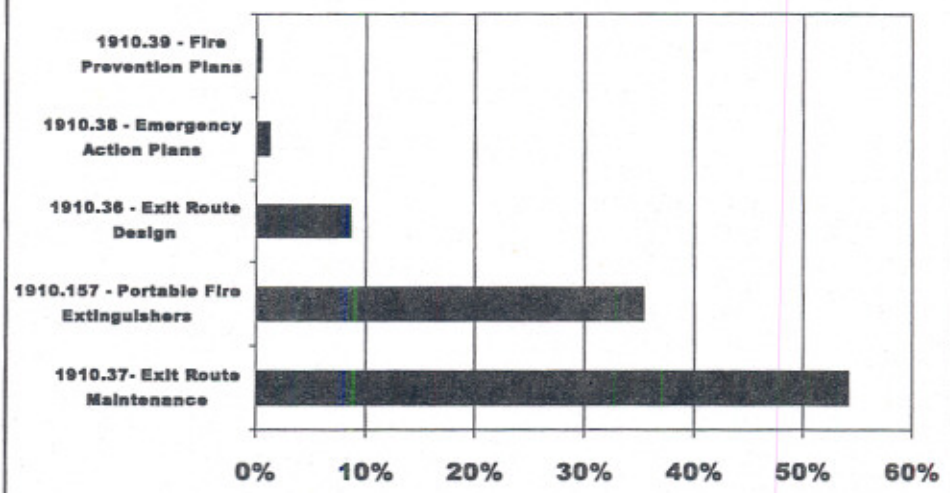

Top Five Subparts Cited
Electrical (1910 S)
36.1%
All Other OSHA
Standards
27.4%
Machinery and
Machine Guarding
(1910 O)
6.9%
Hazardous Materials
(1910 H)
7.8%
Toxic and Hazardous
Substances
(1910 Z)
10.9%
Egress and Fire
Protection
(1910 E and L)
12.2%

Electrical
(33% of all instances)

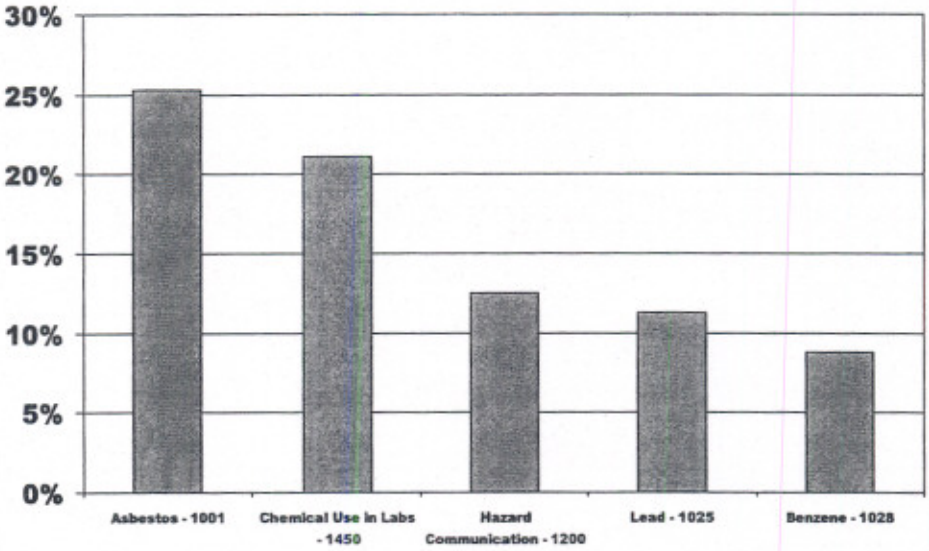
Top 5

- **1910.305(j)(2)(ii) – 41.9%**
  Outlets not suitable for wet or damp environments
- **1910.303(g)(1)(i) and (ii) – 14.5%**
  Obstructions or storage in front of disconnects
- **1910.305(g)(1)(iii) – 12.1%**
  Flexible cord use
- **1910.303(b)(2) – 6.7%**
  Items not used in accordance with their listing
- **1910.307(b)(3) – 4.4%**
  Equipment not rated for classified environments

Egress and Fire Protection
(11% of all instances)



Toxic and Hazardous Substances (10% of all instances)



Hazardous Materials (6% of all instances)

Top 5

- **1910.101(a) and (b) – 73.4%**
  Cylinders not in compliance with DOT or the Compressed Gas Association guidance
- **1910.103(b)(2)(ii)(d) – 1.6%**
  Improper hydrogen storage
- **1910.120(f)(6)(ii) – 1.6%**
  Anticipated exposure information for HAZWOPER physicals
- **1910.106(e)(6)(ii) – 1.3%**
  Containers were not bonded during flammable liquid transfers
- **1910.106(e)(2)(iv)(d) – 1.3%**
  Flammable liquids need closed containers

Machine Guarding (6% of all instances)

Top 5

- **1910.212(a)(1) – 36.7%**
  Install and use guarding on machinery
- **1910.212(a)(3)(ii) – 11.5%**
  Point of operation guarding
- **1910.212(b) – 8.7%**
  Fixed machinery not safely anchored
- **1910.219(d)(1) – 4.9%**
  Guarding pulleys seven (7) feet or less from floors
- **1910.215(b)(9) – 4.2%**
  Grinder guarding

Radiation – 29 CFR 1910.1096

- **22 Instances**
  - 19 instances for improper warning labels either at room entrances or on containers
  - 2 instances for wastes stored improperly
  - Verify that the in-house-built x-ray device and shielding devices meet ANSI N43.2 standards
- **Other Radiation-Related Instances**
  - 8 instances referenced the lab standard
  - 4 instances involved housekeeping standards
  - 2 General Duty Clause instances
  - 22 recommendations covering 33 instances

Medical Recordkeeping – 29 CFR 1904

- 45 Instances
  - 22 related to hearing conservation
  - Others: injuries outside of work buildings, improper recording of restricted duty and days away from work, not using worker compensation decision for OSHA recordability
- One Recommendation

Other 29 CFR 1910 Medical Requirements

- 60 instances for physicals and exposure monitoring for Subchapter Z chemicals including arsenic, carcinogens, lead, methylene chloride, benzene, and others
- 16 noise standard instances
- 8 bloodborne pathogen instances
- One recommendation

General Duty Clause -- 5(a)(1)

Examples:

- Fork lift operators did not use installed safety belts
- Maintenance workers were exposed to falls from the roof while servicing equipment
- A shop-built spreader bar lifting device was not marked with its rated capacity
- Power riding lawn mowing equipment was operated on steep slopes (~30 degrees) with no roll-over protection provided on the machine
- Employees could be locked in a walk-in cooler

Closing Remarks

- Top 5 hazard categories (electrical, toxic and hazardous substances, egress and fire protection, hazardous materials, and machine guarding) observed are generally not high cost items to correct
- In addition to the findings, OSHA has made recommendations to provide DOE opportunities to exceed OSHA compliance requirements

Closing Remarks *(continued)*

- DOE labs have good written safety and health programs, but need to focus more attention on implementing them

- OSHA's guidelines to a successful safety and health program include:
  - **Management commitment and employee involvement**
  - **Worksite analysis**
  - **Hazard prevention and control**
  - **Safety and health training**

www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FEDERAL_REGISTER&p_id=12909